

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/811,161

Filing Date: March 26, 2004

Appellant: Manish Sinha

Group Art Unit: 1795

Examiner: Keith D. Walker

Title: LOAD FOLLOWING ALGORITHM FOR A FUEL
CELL BASED DISTRIBUTED GENERATION
SYSTEM

Attorney Docket: GP-303576

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APPELLANT'S REPLY BRIEF

This is Appellant's Reply Brief filed in response to the Examiner's Answer mailed August 03, 2010 to which a response is due by October 03, 2010. Please consider the comments below.

In response to Appellant's assertion that the rejections under §112 are untimely because they were not asserted by the Examiner until more than two years after the first Office Action on the merits, the Examiner states, "[W]hile the rejection was not presented earlier in examination, due to appellant's arguments presented through examination and in trying to better understand the invention, the issue of enablement was uncovered and so presented." Applicant submits that the Examiner introduced the §112 rejections after the Second Appeal Brief was filed, i.e., after the issues should have been clearly understood and articulated. If the Examiner was still unsure as to the

content of the application, a Final Office Action should not have been issued. Furthermore, Appellant respectfully notes that the Office Action mailed March 22, 2010, which contained the §112 rejections, was mailed after Appellant filed their Petition regarding the appropriateness of reopening prosecution in the Office Action mailed September 08, 2009.

It is the Examiner's position, on page 17 of the Examiner's Answer, that "the working mechanism that is controller 56 is an unknown element and the device intended by the inventor is not exemplified or discussed in the instant disclosure." Appellant respectfully reminds the Board that the test for enablement is as follows:

Any analysis of whether a particular claim is supported by the disclosure in an application requires a determination of whether that disclosure, when filed, contained sufficient information regarding the subject matter of the claims as to enable one skilled in the pertinent art to make and use the claimed invention. The question to be asked when determining whether claims comply with the enablement requirement is as follows: is the experimentation needed to practice the invention undue or unreasonable? MPEP 2164.01. USPTO personnel must always remember to use the perspective of one of ordinary skill in the art. Claims and disclosures are not to be evaluated in a vacuum. If elements of an invention are well known in the art, the applicant does not have to provide a disclosure that describes those elements. MPEP 2106.

As discussed on pages 10-12 of Appellant's Third Appeal Brief (entitled and referred to herein as Appellant's "Third Appeal Brief" to avoid any confusion that may arise from referring to Appellant's "Second Second Appeal Brief," although Appellant acknowledges that the Examiner takes issue as to the precise accuracy of this title, discussed *supra*.) Appellant's specification, particularly paragraphs [0022] – [0025] and figure 2 of Appellant's disclosure, explains, *inter alia*, the interrelationship between the components of Appellant's claimed invention. Therefore, for the reasons discussed in Appellant's Third Appeal Brief and of record, Appellant respectfully maintains that claims 1-15 comply with the enablement requirement of §112, first paragraph.

Appellant also respectfully submits that the title "Third Appeal Brief" is both correct and proper. Appellant prepared and filed the Second Appeal Brief in response to the Office Action reopening prosecution because their Petition concerning same had not been decided within the time limit for responding to the Office Action, i.e., the three month time period.

With respect to the Examiner's rejection to claims 7 and 14 as being indefinite, Appellant respectfully points out that Appellant, on page 14 of the Third Appeal Brief, restated the meaning of the claim language at issue for the Examiner's edification, as Appellant does not perceive a need to rewrite the claim language. Furthermore, Appellant stated, on page 14 of the Third Appeal Brief, that:

Appellant is unclear as to the point the Examiner is trying to make, as the Examiner's conclusion that the fuel cell controller is always increasing the available output of current seems irrational. Claims 7 and 14 claim, *inter alia*, that the controller increases the available output power if the battery sensor measures a predetermined battery current continuously for a predetermined period of time. Put another way, if battery current maintains some value, the controller will signal that the amount of output power may be increased because the battery seems to be maintaining an optimal value, i.e., is not being depleted. One skilled in the art would readily perceive this, as any power generating device that is capable of always increasing available output seems unrealistic, even to a layperson.

The Examiner's response, in part, to the above recreated passage from Appellant's Third Appeal Brief, from page 18 of the Examiner's Answer, states:

First as correctly described by appellant, the claimed limitations provide an unrealistic situation that is unclear to one of ordinary skill in the art and so the meets (metes) and bounds of the claim language cannot be determined.

Appellant's request for clarification appears to be in vain, as the Examiner's response primarily consists of a reinterpretation of Appellant's arguments without a further elucidation of the issue. However, Appellant respectfully maintains that claims 7 and 14 are definite for the reasons of record.

With respect to the Dickman reference, it is the Examiner's position, on pages 20 and 21 of the Examiner's Answer, that Dickman's teaching of increasing the available power and decreasing the available power through increasing and decreasing the number of operational fuel cells meets the general claim of a load following algorithm. As discussed on page 18 of Appellant's Third Appeal Brief, Dickman does not teach a fuel cell current sensor that measures the draw current of a fuel cell being sent to a power conditioning module, where the measured current is sent to a fuel cell controller that then provides a command signal to the fuel cell using that measured current. In addition, Appellant, also on page 18 of the Third Appeal Brief, discussed that Dickman does not teach that the controller decreases the available output power of the fuel cell if the current draw enters a diverge threshold region.

Furthermore, Appellant argues, on page 22 of Appellant's Third Appeal Brief, that the Jones process does not provide a command signal applied to a fuel cell that sets the available output power from the fuel cell. The Examiner asserts, on page 23 of the Examiner's Answer, that paragraphs [0027] – [0028] of Jones discloses a controller that monitors the current drawn from the fuel cell and matches the output of the fuel cell to the load via communication lines. Paragraphs [0027] and [0028] of Jones state:

[0027] Referring to FIG. 1, in some embodiments of the invention, the fuel cell system 10 includes a controller 60 to detect the up and down transients and regulate the fuel processor 22 accordingly. More specifically, in some embodiments of the invention, the controller 60 detects these up and down transients by monitoring the cell voltages, the terminal stack voltage (called "V_{TERM}") and the output current of the fuel cell stack 20. From these measurements, the controller 60 may determine when an up or down transient occurs in the power that is consumed by the load 50.

[0028] To obtain the above-described measurements from the fuel cell stack 20, the fuel cell system 10 may include a cell voltage monitoring circuit 40 to measure the cell voltages of the fuel cell stack 20 and the V_{TERM} stack voltage; and a current sensor 49 to measure a DC output current from the stack 20. The cell voltage monitoring circuit 40 communicates (via a serial bus 48, for example) indications of the

measured cell voltages to the controller 60. The current sensor 49 is coupled in series with an output terminal 31 of the fuel cell stack 20 to provide an indication of the output current (via an electrical communication line 52). With the information from the stack 20, the controller 60 may execute a program 65 (stored in a memory 63 of the controller 60) to determine whether an up or down transient has been detected and control the fuel processor 22 accordingly via electrical communication lines 46. . . (Emphasis added).

Applicant respectfully maintains that Jones does not teach providing a command signal applied to a fuel cell that sets the available output power from the fuel cell. Paragraphs [0027] and [0028] of Jones discloses detecting a transient and controlling a fuel processor. Controlling a fuel processor is not the same as providing a command signal applied to a fuel cell that sets the available output power from the fuel cell. Accordingly, Appellant respectfully maintains, for the reasons discussed above and the reasons of record, Jones does not anticipate or render obvious Appellant's claims 1-5 and 10-13.

Appellant also respectfully maintains that Inoue does not teach a controller in communication with a power conditioning module that sets the maximum power output of a fuel cell and the maximum available drawn current from the fuel cell. The Examiner, on page 27 of the Examiner's Answer, cites column 2, lines 40-45 of Inoue as providing this teaching. Column 2, lines 40-45 of Inoue state:

An output control regulator for controlling the output current of the inverter as close to the current value corresponding to the output power set value of the inverter as possible.

Appellant respectfully submits that Inoue is only discussing an inverter in column 2, lines 40-45, and is not describing a power conditioning module that sets the maximum power output of a fuel cell and the maximum available draw current from the fuel cell, i.e., is not an "example" of how Inoue teaches Appellant's claim language as alleged by the Examiner.

Next, the Examiner cites column 3, lines 10-18, which state:

An output setting unit for setting an output power set value of the fuel cell;

An available output computing unit for computing a current value corresponding to the maximum available output value of the fuel cell on the basis of detected flow rate.

While a maximum power output of a fuel cell may be suggested, Appellant respectfully maintains that Inoue is not disclosing a power conditioning module that sets the maximum power output of a fuel cell and the maximum draw current from the fuel cell. Therefore, for the reasons discussed above and the reasons of record, Appellant respectfully maintains that claims 1-5 and 10-13 are not obvious in view of Jones and Inoue.

In view of the foregoing, it is respectfully requested that the Examiner's rejections be reversed.

Respectfully submitted,

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